

OBREZKOY, S.S., inzhener.

Machinery room of the Jechenstein Hydroelectric Power station and its  
basic hydraulic and mechanical equipment. Gidr. stroi. 26 no.3:56-58  
Mr '57.

(MIRA 10:4)

(Germany, West--Hydroelectric power stations)

OBREZKOV, S.S., inzhener; MATVEYEV, Ye.S., inzhener.

On studying the operation of hydraulic structures. Gidr.stroi.  
26 no.6:16-20 Je '57. (MLBA 10:7)  
(Hydraulic engineering)

AUTHOR: Obrezkov, S.S., Engineer

SOV-98-58-2-14/21

TITLE: Readers' Letters and Responses (Pis'ma i otkliki chitateley).  
Technical Specifications and Norms for Designing Construc-  
tions of Head Installations on Mountain Rivers (O tekhnicheskikh usloviyakh i normakh na proyektirovaniye sooruzheniy golovnykh uzlov na gornyykh rekakh)

PERIODICAL: Gidrotekhnicheskoye stroitel'stvo, 1958, Nr 2, pp 48-50 (USSR)

ABSTRACT: An examination of the existing Technical Specifications and Norms (TU1N) for designing hydroelectric power centers on mountain rivers (TU 24-109-49 and TU 24-110-48) reveals that they lag considerably behind the present status of engineering. The author refers to some of the deficiencies with regard to the recommended type of structures, their construction, and the determining of the exploitation processes. There are 4 references.

1. Power plants---Specifications

Card 1/1

AUTHOR: Obrezkov, S.S., Engineer 98-58-7-12/21

TITLE: Construction of the Roxburgh Hydroelectric Power Plant  
(Stroitel'stvo gidroelektrostantsii Roksbro)

PERIODICAL: Gidrotekhnicheskoye stroitel'stvo, 1958, Nr 7, pp 51-56 (USSR)

ABSTRACT: This is a detailed description of the Roxburgh Hydroelectric Power Plant built in New Zealand, taken from the Schweizerische Bauzeitschrift, Oct 57, vol 75, Nr 43, pp 683-691. There is 1 photo, 2 graphs, and 10 diagrams.

1. Power plants--Characteristics--New Zealand

Card 1/1

14(10)

307/10-11-5-17/1

AUTHOR: Obrezkov, S.S., Engineer

TITLE: The Earth Silvenstein Dam

PERIODICAL: Gidrotekhnicheskoye stroitel'stvo, 1959, Nr 5,  
pp 48-52 (USSR)

ABSTRACT: The author describes in detail the construction of  
the dam at the Hydroelectrical Center on the Isar  
River. There are 5 drawings.

Card 1/1

OBREZKOV, S.S., inzh.

Heavy-duty scraper train. Mekh.stroi. 17 no.2:27-28 F '60.  
(United States--Scrapers) (MIRA 13:8)

OBREZKOV, S.S., inzh.

Conference of all construction organizations on the exchange of  
experience in using precast reinforced and plain concrete in  
hydroelectric power stations. Gidr.stroi. 30 no. 8:57-61 Ag  
'60. (MIRA 13:8)

(Concrete construction)

(Hydroelectric power stations)

OBREZKOV, S.S., inzh.

Arch dams in northern Italy. Construction of the Vajont Dam.  
Gidr. stroi. 31 no.2:49-57 F '61. (MIRA 14:3)  
(Italy—Dams)



OBREZKOV, S.S., inzh.

Conference on generalization of experience in planning, building  
and using hydroelectric stations of the Dnieper chain. Gidr.stroi.  
31 no.3:58-61 Mr '61. (MIRA 14:4)

(Dnieper River--Hydroelectric power stations)

OBREZKOV, S. S., inzh.

Study of the characteristics of the rock of the foundation  
of an arch dam (from "Geologie und Bauwesen," no.1, 1961).  
Gidr. stroi. 33 no.12:44-47 D '62. (MIRA 16:1)

(Kurobe Valley, Japan—Rocks—Testing)

KUPERMAN, V.L., inzh.; OBREZKOV, S.S., inzh.; ERISTOV, V.S., red.;  
BOBRITSKIY, M.M., inzh., red.; MOSTKOV, V.M., inzh.,  
red.; KOZANOV, K.A., inzh., red.; TAYCHER, S.I., inzh.,  
red.; KORNILOV, A.M., red.; LARICNOV, G.Ye., tekhn.red.

[Design and construction of hydraulic tunnels and under-  
ground hydroelectric power stations] Proektirovanie i so-  
oruzhenie gidrotekhnicheskikh tunnelei i podzemnykh GES;  
materialy soveshchaniia. Moskva, Gosenergoizdat, 1963.  
231 p. (MIRA 16:10)

1. Chlen-korrespondent Akademii stroitel'stva i arkhi-  
tektury SSSR (for Eristov).  
(Hydroelectric power stations)

BOGOMOLOV, Anatoliy Ivanovich, prof.; MIKHAYLOV, Konstantin  
Aleksandrovich, prof. Prinsipal uchastiye SHATAN, V.S.,  
kand. tekhn. nauk; UGINCHUS, A.A., prof., doktor tekhn.  
nauk, retsenzent; KISELEV, P.G., dots., kand. tekhn.  
nauk, retsenzent; AL'TSHUL', A.D., retsenzent;  
OBREZKOV, S.S., inzh., nauchn. red.

[Hydraulics] Gidravlika. Moskva, Izd-vo lit-ry po stroit.  
1965. 632 p. (MIRA 18.7)

OBREZKOV, V.A.

Computing equipment used for calculating transition processes  
in the tailwater of hydroelectric power plants. Biul. tekhn.-  
ekon. inform. no.8:41-42 '58. (MIRA 11:10)  
(Electronic digital computers)  
(Hydroelectric power plants)

S/672/62/000/011/004/011  
D403/D307

AUTHORS: Kokurin, A. D. and Obrezkov, V. D.

TITLE: Study of the mechanism of the process of electrocracking of liquid products

SOURCE: Leningrad. Vsesoyuznyy nauchno-issledovatel'skiy institut pererabotki i ispol'zovaniya topliva. Trudy. no. 11, 1962. Khimiya i tekhnologiya topliva i produktov pererabotki, 101 - 106

TEXT: A brief account is first given of the difficulties of the study of electrocracking of various liquid products in multiple arcs, concluding that little is as yet known of the processes taking place. The present study was concluded with simple liquid materials of known composition. Compositions of gases obtained from the cracking of benzene with various size fractions of powder movable electrodes (chiefly acetylene (33-37%) and hydrogen (61-66%)), and of gases obtained from toluene and xylene, are tabulated. The alkylbenzenes gave slightly higher contents of  $C_2H_2$ ,  $C_2H_4$ .

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S/672/62/000/011/004/011  
D403/D307

Study of the mechanism ...

( $C_3H_6 + C_4H_8$ ) and  $CH_4$  than benzene itself, but lower yields of  $H_2$ . The reactions are thought to proceed via free radicals. Some results are also given of the cracking of O-containing compounds (alcohols and water). Carbon of the electrodes participates in the reactions. To determine the effect of the elementary composition of the starting material, the authors studied the cracking of  $C_2H_6 - CH_3OH$  mixtures taken in molar ratios of 3:1, 1:1 and 1:3 (i.e.  $C:H = 1:1.22, 1:1.67$  and  $1:3.0$ ). It was found that increasing the H-content in the mixtures led to higher yields of acetylene but did not affect the yields of olefins. There are 1 figure and 3 tables.

Card 2/2

S/672/62/000/011/005/011  
D403/D307

AUTHORS: Kokurin, A. D. and Obrezkov, V. D.

TITLE: The effect of certain factors on the electrocracking in microdischarges

SOURCE: Leningrad. Vsesoyuznyy nauchno-issledovatel'skiy institut pererabotki i ispol'zovaniya topliva. Trudy. no. 11, 1962. Khimiya i tekhnologiya topliva i produktov yego pererabotki, 107-119

TEXT: The object of the present study was to provide guidance for the design of industrial microdischarge electrocracking installations. The work was carried out on laboratory scale. The factors considered were: (1) Construction of apparatus; rectangular reactors are preferable to cylindrical ones. Various reactors are illustrated and compared. The effects of mechanical stirring or shaking of the carbon filling (movable electrodes) are discussed. (2) The effects of the amount and size fraction of the carbon filling on the effectiveness of the process and on the composition of the

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The effect of certain ...

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D403/D307

resulting gas. In the cracking of kerosene finer filling led to decreased yields of  $C_2H_2$  and increased  $C_2H_4$ ,  $C_3H_6$  and  $C_4H_8$ . (3) The effects of interelectrode distance (l) and of circulation of the liquid material on effectiveness of the process; the productivity (l/hr) fell sharply with increasing l, and was slightly higher with circulation. (4) The effect of elemental and group composition of the starting material on the products. The percentage content of  $C_2H_2$  in the gas m is given by

$$m = \frac{0.5(n - x)(100 - K)}{n + y}$$

where n is the number of C atoms in the molecule, K is the vol.% of C forming soot, and x, y are constants depending on the type of the starting material (for paraffins x = 0, y = 1; for naphthenes x = y = 0; for aldehydes and ketones x = 1, y = 2; for monatomic [Abstracter's note:  $C_1?$ ] alcohols x = 1, y = 2; for diatomic alcohols x = 2, y = 3; for triatomic alcohols x = 3, y = 4). Adjust-  
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S/672/62/000/011/005/011  
D403/D307

The effect of certain ...

ment of gas composition is discussed. (5) The effect of pressure on gas composition: reduced pressure increases and increased pressure (8 - 20 atm) decreases the yields of acetylene in the cracking of kerosene. The method of electrocracking in multiple voltage arcs is thought to be highly promising. There are 11 figures and 1 table.

Card 3/3

KOKURIN, A.D.; OBREZKOV, V.D.

Mechanism of the process of electrocracking of liquid products.  
Zhur.prikl.khim. 35 no.2:458-461 F '62. (MIRA 15:2)  
(Cracking process)

KOKURIN, A.D.; OBREZKOV, V.D.; KOLODIN, E.A.

Effect of the size of movable electrodes in electrocracking of  
liquid products. Zhur.prikl.khim. 35 no.6:1379-1382 Je '62.  
(MIRA 15:7)

(Electrodes) (Cracking process)

KOKURIN, A.D.; OBREZKOV, V.D.

Effect of elementary composition of raw materials on the formation  
of carbon black in the process of electrocracking in microarcs.

Zhur.prikl.khim. 35 no.11:2574-2577 N '62. (MIRA 15:12)  
(Carbon black) (Cracking process)

S/080/63/036/002/013/019  
D204/D307

AUTHORS: Kokurin, A. D., Obrezkov, V. D. and Sibarov, D. A.

TITLE: Electrocracking of sulfur-containing petroleum fractions to obtain acetylene, olefins, hydrogen, soot, and products containing sulfur

PERIODICAL: Zhurnal, prikladnoy khimii, v.36, no. 2, 1963, 424-427

TEXT: The starting materials investigated consisted of (1) petroleum oil from the Romashkinskoye deposit, containing 3.35% S; (2) artificial mixtures of benzene and thiophen containing dissolved free S. Electrocracking of (1) gave about 31% of acetylene, 6% olefins, 54%  $H_2S$ , and also  $H_2S$ , mercaptans, S, and  $CS_2$ . The S-content in the starting oil was simultaneously decreased by about 20 - 30%. Decomposition of (2) gave 57.2% S from the decomposition of thiophen, 42.8% S being in elemental form, and the remainder forming  $H_2S$  and  $CS_2$ . Decomposition of a 1.58% solution of S in benzene gave  $H_2S$  and

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Electrocracking of ...

S/080/63/036/002/013/019  
D204/D307

CS<sub>2</sub>: 73% of the S went into the former. There are 11 figure and 2 tables.

SUBMITTED: June 15, 1962

Card 2/2

KOKURIN, A.D.; OBREZKOV, V.D.; SIBAROV, D.A.

Electrocracking of sulfur-bearing oil distillates for the purpose of obtaining acetylene, olefins, hydrogen, carbon black, and sulfur-containing products. Zhur.prikl.khim. 36 no.2:424-428 F '63.

(MIRA 16:3)

(Cracking process)

(Petroleum products)



KOKURIN, A.D.; OBREZKOV, V.D.; ANDREYEV, N.S.

Preparation of vinyl acetate from diluted acetylene. Zhur. prikl.  
khim. 36 no.4:886-889 Ap '63. (MIRA 16:7)

(Vinyl acetate) (Acetylene)

KOKURIN, A.D.; OBREZKOV, V.D.

Production of acetylene from gaseous and liquid hydrocarbons and  
tars. Trudy IGI 16:109-113 '61. (MIRA 16:7)  
(Acetylene) (Hydrocarbons)

KOKURIN, A. D.; OBREZKOV, V. D.

Studying the mechanism of the electrocracking of liquid products.  
Trudy VNIIT no. 11:101-106 '62.

Effect of certain factors on electrocracking in micro-discharges.  
Ibid.:107-119. (MIRA 17:5)

~~OBREZKOV, Valentin Ivanovich~~; TSVETKOV, Ye.V., kand. tekhn.nauk;  
BUL'DYAYEV, N.A., tekhn. red.

[Use of computer technology in hydroelectric power plant  
calculations] Primenenie vychislitel'noi tekhniki v gidro-  
energeticheskikh raschetakh. Moskva, Gosenergoizdat,  
1963. 215 p. (MIRA 16:10)

(Hydroelectric power stations)  
(Electronic computers)

OBREZKOV, V.I., kand.tekhn.nauk

Use of an electronic digital computer in calculating the optimum operation of hydroelectric power stations in a consolidated system with seasonal regulation. Elek. sta. 34 no.6:38-42 Jo '63. (MIRA 16:9)  
(Hydroelectric power stations)

4210. ARRANGEMENT FOR SOFTENING WATER BY THERMAL MEANS.  
Obreskov, V.I. (Za Ekonomiya Topliva (Fuel Econ.), 1949,  
(5), 28). (L).

USSR/Engineering - Hydraulics, power  
Stations  
"Electric Method for Calculating Seasonal Regula-

Mar 52

tion," V. I. Obrezkov, Cand Tech Sci  
"Gidrotekh Stroi" No 3, pp 34-38

Suggests method for calcg water-power regulation of  
suggests elec measuring instruments and equipment of  
using elec measuring instruments and equipment of  
rheostats combined conditions. Discusses calibration pro-  
cedure to operational station. Discusses application  
cable to operational station. Discusses application  
given hydroelec examples of all practically  
that method makes possible soln of all practically  
219724

necessary problems of water-power regulation, includ-  
ing those which have no graphical calcg method.

219724

KOV, V.I.

APPROVED FOR

OBREZKOV, ENG. V. I.

Feed Water Purification

Apparatus for the thermal treatment of feed water (constructed by Eng. Obrezkov).  
Rab. energ. 2, No. 9, 1952.

9. Monthly List of Russian Accessions, Library of Congress, December 1952 Uncl.



OBREZKOV, V.I.

Electrical Engineering  
Abst.

Section B

March 1954

Supply. Generation. Power  
Stations. Substations.

/ 621.311.15 : 621.374.32  
421. An electrical method for calculating the distribution of load between hydro-electric and thermal power stations. V. I. OBREZKOV, *Gidrotekh. Stroit.*, 1953, No. 6, 28-32. In Russian.

An integrating circuit with 3 functional potentiometers (two for the consumption characteristic of one hydro-electric station, one for the lumped characteristics of the thermal stations), two triodes and 8 indicating instruments for loads, water head, etc., is used to determine the conditions of parallel operation ensuring a minimum fuel consumption. Some trial and error is necessary, but calculation is done much more rapidly with this than with previous devices, it is claimed.

F. QUELON

OBRIZKOV, V.I., kandidat tekhnicheskikh nauk, dotsent.

Using the methods of mathematical modeling in water-power  
engineering. Trudy MEI no.19:27-30 '56. (MLRA 10:1)

1. Kafedra gidroenergetiki',  
(Calculating machines)  
(Hydroelectric power stations--Electromechanical analogies)

OBREZKOV, V.I., kandidat tekhnicheskikh nauk.

Numerical-nomographic method for calculating the regulation of  
reservoir discharge at hydroelectric power stations. Trudy MEI  
no.19:57-67 '56. (MIRA 10:1)

1. Kafedra gidroenergetiki.  
(Hydroelectric power stations)

8(6), 14(6, 10)

SOV/112-59-4-6670

Translation from: Referativnyy zhurnal. Elektrotekhnika, 1959, Nr 4, p 41 (USSR)

AUTHOR: Chelnokov, N. I., Tetel'baum, I. M., and Obrezkov, V. I.

TITLE: Calculating the Transient Motion in the Tailrace of a Hydroelectric Station  
by Means of Electric Simulation

PERIODICAL: V sb.: Mezhvuz. konferentsiya po primeneniyu modelirovaniya v  
elektrotekhn. zadachakh i matem. modelirovaniya. M., 1957, pp 159-161

ABSTRACT: A method for solving the problem of a transient motion in the tailrace  
of a hydroelectric station that has a diurnal regulation is described; the  
method employs mathematical simulation on the basis of an electrical analogy.  
The problem is solved by electric simulation of a set of Sen-Venan's  
differential equations. The network consists of capacitors, direct, reverse,  
and self-conductances, and active fourpoles (cathode followers).

Yu. M. S.

Card 1/1

OBREZKOV, V.I., inzhener.

Heat treatment of feed water. Bezop.truda v prom.1 no.3:26-28 Mr '57.  
(MIRA 10:4)

(Feed water)

OBREZKOV, V.I., kandidat tekhnicheskikh nauk.

Electric calculating methods in hydroelectric power engineering.  
Gidr. stroi. 26 no. 4: 38-40 Ap '57. (MLA 10:6)  
(Electromechanical analogies)

OBREZKOV, V.I., kand.tekhn.nauk, dotsent; TETEL'BAUM, I.M., kand. tekhn.  
nauk, dotsent; CHELNOKOV, N.I., starshiy prepodavatel'

Using electric simulation for the calculation of unsteady motion in  
the tail water of hydroelectric power stations. Trudy MEI no.30:  
35-50 '58. (MIRA 12:5)

1.Moskovskiy ordena Lenina energeticheskiy institut, Kafedra  
avtomatiki, telemekhaniki i matematicheskikh mashin (for Tetel'baum,  
Chelnokov). 2.Moskovskiy ordena Lenina energeticheskiy institut,  
Kafedra gidroenergetiki (for Obrezkov).  
(Hydroelectric power stations--Electromechanical analoties)

OBREZKOV, V.I.; TETEL'BAUM, I.M.; CHELNOKOV, N.I.

Using a continuous action electronic computer for calculation of the unsteady motion in the tail water of a hydroelectric power station. Nauch.dokl.vys.shkoly; energ. no.2: 103-114 '59. (MIRA 13:1)  
(Hydroelectric power stations)



OBREZKOV, V.I., inzh.

Prevent dangerous metal corrosion in steam boilers. Bezop.  
truda v prom. 4 no.2:21 F '60. (MIRA 13:5)  
(Boilers--Safety measures)

OBREZKOV, V.I., kand.tekhn.nauk

Using calculating machines in computing the non-uniform  
flow in tailraces of hydroelectric power stations. Gidr.  
stroi. 29 no.3:32-36 Mr '60. (MIRA 13:6)  
(Electronic calculating machines)  
(Hydraulics—Tables, calculations, etc.)

Application of Analog Computers to Water Power Engineering

"Experience in Utilizing Analog Computers for Water-Power Engineering Calculations," by V. I. Obrezkov, A. I. Seryshev, and N. I. Chelnokov; Moscow, Gidrotekhnicheskoye Stroitel'stvo. No. 2, Feb 61, pp 40-42

The authors developed a method for calculation of water power regulation with the aid of an analog computer. A series of formulas tying in all the power parameters of a hydroelectric station and its water reservoir were derived. For the solution of these equations, all the values were expressed by voltages of a rather limited range ( $\pm 100$  v), which led to some inaccuracies.

Any of the Soviet series manufactured analog computers, such as MPT-9, MPT-11, and MN-7, can be successfully applied to the solution of this type of problems. The solution was conducted on an accelerated time scale, as, for example, a week of operation in 1-10 machine seconds, so that the solution for a whole operating period was obtained in a few minutes.

Calculation was carried out for the water-level fluctuation of the Novosibirsk hydroelectric station reservoir. The solutions obtained with the analog computer agreed quite closely with actual conditions observed at hydroelectric installations.

OBREZKOV, V.I., kand.tekhn.nauk, dotsent

Use of computers in hydroelectric power engineering. Trudy MEI no.35:  
243-249 '61. (MIRA 15:12)  
(Hydroelectric power stations) (Electronic computers)

OBREZKOV, V.I., kand.tekhn.nauk

Use of analog computers in calculating the regulation of seasonal water flow with objective to generate maximum power by the hydroelectric power station. Elek.sta. 33 no.11:35-36 N '62.

(MIRA 15:12)

(Hydroelectric power stations)

ZOLOTAREV, I.I., dokl. tekhn. nauk; CHERNOMIR, I.I., kandyd. tekh. nauk

Use of computers in the operation of hydroelectric power stations.  
Trudy MEI no. 16:5-12 '63. (MIRA 18:3)

1. Kafedra gidroenergetiki Mo.kovskogo ordena Lenina energeticheskogo  
instituta.

OBREZKOV, V.I., kand.tekhn.nauk; MALININ, N.K., inzh.; MATVIYENKO, N.I., student; ZUBAREV, V.V., student

Determination of the optimum operation of a hydroelectric power station with seasonal regulation using analog computers. Trudy MEI no.46:13-24 '63. (MIRA 18:3)

1. Kafedra gidroenergetiki Moskovskogo ordena Lenina energeticheskogo instituta.

PHASE I BOOK EXPLOITATION

SOV/3323  
SOV/55-4-8

Poltava. Gravimetricheskaya observatoriya

Trudy, tom 8 (Transactions of the Poltava Gravimetric Observatory, vol 8)  
Kiyev, Izd-vo AN Ukrainskoy SSR, 1959. 190 p. Errata slip inserted.  
2,000 copies printed.

Additional Sponsoring Agency: Akademiya nauk Ukrainskoy SSR.

Ed. of Publishing House: N. M. Labinova; Tech. Ed.: T. Ya. Mazurik; Resp. Ed.:  
Z. N. Aksent'yeva, Corresponding Member, UkrSSR Academy of Sciences.

PURPOSE: These articles are intended for scientific workers, teachers and  
aspirants working in the fields of astronomy, geodesy and geophysics.

COVERAGE: This book contains the results of the analysis of a six-year cycle of  
observations of two bright zenith stars over Poltava ( $\alpha$  Perseus and  $\eta$  Ursa  
Major), data on the movement of the pole from 1946 to 1956, calculated lati-  
tudes based on observations at 12 observatories, and also the results of an  
investigation of the changes in the mean latitudes of MSSh (International Lat-  
titude Service) stations.

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Transactions of the Poltava Gravimetric (Cont.)

SOV/3323

TABLE OF CONTENTS:

Popov, N.A. Analysis of the Results of the Six-Year Series of Twenty-Four-Hour Observations of Zenith Stars at Poltava

This article discusses the systematic observation at Poltava in 1939 of the following bright zenith stars:

<u>Name of Star</u>	<u>m</u>	<u><math>\alpha</math></u> 1955.0	<u><math>\delta</math></u> 1955.0
$\alpha$ Perseus	1.9	3 <sup>h</sup> 21 <sup>m</sup> 05 <sup>s</sup> .89	+ 49°42'10".01
$\eta$ Ursa Major	1.9	13 45 46 .13	+ 49 32 14. 32

Results of twenty-four-hour observations of latitude covering a six-year period are given. The observations were largely devoted to nonpolar latitude variations. For daytime observations stars not weaker than the second magnitude were chosen. The author points out the difficulty of choosing such bright stars from Talcott star pairs due to the necessity of limiting observations to zenith stars, that is, to stars which are in a narrow zone of declinations which passes through the zenith of the observatory. In 1955, in addition to the research program mentioned, a study was

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Transactions of the Poltava Gravimetric (Cont.)

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made of the micrometer to determine more accurately rate and periodic errors. The Ridberg method was used in making observations to correct for periodic errors of the micrometer. The importance of determining the temperature coefficient, and the effect of ambient temperature on observations is discussed. The whole cycle of observations comprised 966 observations of  $\alpha$  Perseus, and 974 observations of  $\eta$  Ursa Major. The average latitude for the six-year period was  $49^{\circ} 36' 13''.04$  from  $\eta$  Ursa Major observations, and  $49^{\circ} 36' 13''.08$  from  $\alpha$  Perseus observations. The author states that in determining the wave pattern of daily variations ( of observation readings) the usual method was somewhat changed. The author states in conclusion that the results of the determination of the "z-member" do not indicate the existence of a daily pattern of the type  $\Delta \phi = \text{acos} ( t_0 + \gamma )$  in latitude observations.

Panchenko, N.I. Movement of the Earth's Pole From 1946 to 1954.

90

The author reviews the first latitude observations made in the last decade of the 19th century, calling attention particularly to the setting up of the International Latitude Service in 1899 to coordinate the work of seven special latitude measurement stations. He discusses in

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Transactions of the Poltava Gravimetric (Cont.)

SOV/3523

particular the curves of latitude variations of the international stations, the pole coordinates calculated from observations of the station, latitude variations of the Midzusava, Poltava, Pulkovo, Paris, La Plata, Ottawa, Washington, Richmond, and the Engel'gardt (Kazan') observatories, the pole coordinates obtained from observations of all the observatories, and the mean latitudes of the International Latitude Service stations. There are 32 pages of tabular data for the observatories mentioned.

Obrezkova, Ye.A. Variations in the Mean Latitude of Midzusava, Carloforte and Ukiah for the Period 1900 Through 1934

152

This article discusses the periodic and secular changes in latitude, and treats in detail the reduction of the results of observations of 74 star pairs to the general system of inclinations and proper movements, derivation of the mean latitude of Midzusava, Carloforte and Ukiah, micrometer screw turn values used in processing the observations of the International Latitude Service stations, correcting the mean latitudes of Midzusava, Carloforte and Ukiah for incorrect micrometer screw turn values, variations in the mean latitude of Midzusava, Carloforte and Ukiah from observations of 64 star pairs, and comparison of variations of mean latitude in various systems of proper movements of stars. The author summarizes the observation results in a lengthy conclusion consisting of fourteen separate points.

AVAILABLE: Library of Congress

TM/fal

5-6-60

OBREZKOVA, Ye.I.

Variation in the mean latitude of stations at Ukiah, Carloforte,  
and Mizusawa. Astron. tsir. no.143:18-20 N '53. (MLRA 7:8)

1. Observatoriya, Poltava.  
(Latitude variation)

OBREZKOVA, Ye.I.

Values for a turn of the micrometer screw acceptable in making  
observations for the International Latitude Service. Astron. tsir.  
no. 148:11 Ap '54. (MLRA 7:8)

1. Observatoriya (Poltava)  
(Micrometer)

OBREZKOVA, Ye. I.

Changes in the mean latitude of stations at Mitsuzawa, Carloforte,  
and Ukiah. Astron. tsir. no. 161:10 J1'55. (MLRA 8:12)  
(Latitude variation)

OBRIZKOVA, Ye. I.

Slow changes in the latitude of Poltava according to observations  
of two bright zenith stars. Astron. tsir. no. 161:11-12 J1'55.  
(Poltava--Latitude variation) (MLBA 8:12)

OBREZKOVA, Ye.I.

Variations of mean latitudes of Poltava, Misusava, Richmond,  
and Washington [with summary in German]. Astron.zhur. 34  
no.3:458-468 Ky-Je '57. (MLRA 10:7)

1. Poltavskaya gravimetricheskaya observatoriya Akademii nauk USSR.  
(Latitude variation)



S/035/60/000/010/007/021  
A001/A001

Translation from: Referativnyy zhurnal, Astronomiya i Geodeziya, 1960, No. 10, pp. 16-17, # 9875

AUTHOR: Obrezkova, Ye. I.

TITLE: Variations in the Mean Latitude of Midzusava, Carloforte and Yukaya During the Time From 1900 to 1934

PERIODICAL: Tr. Poltavsk. gravimetr. observ. AN UkrSSR, 1959, Vol. 8, pp. 152-191

TEXT: Variations in the mean latitudes of three stations of the International Latitude Service (Midzusava, Carloforte, Yukaya) were determined from 74 pairs of stars observed continuously during a considerable part of the time period considered. All the pairs were preliminarily reduced to a unified system of declinations and proper motions based on the data published by the Central Office of the International Latitude Service for various observation periods. Corrections were introduced into the initial data for the incorrectly adopted values of a micrometer screw scale division, prior to the application of A. Ya. Orlov's formula. Curves of mean latitude variations were calculated in two variants:

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S/035/60/000/010/007/021  
A001/A001

Variations in the Mean Latitude of Midzusava, Carloforte and Yukaya During the Time From 1900 to 1934

with proper motions according to the International Latitude Service data reduced by the author to a unified system, and on the basis of the catalogue. It is pointed out that the mean latitudes of the three stations did not remain invariable, as was held by Cecchini G., Director of the Central Office of the International Latitude Service. In the variations of mean latitudes a linear trend is observed (amounting to + 0".0047 per year for Yukaya) on which waves of irregular nature and large amplitude are superimposed. The linear part of mean latitude variations depends essentially on the adopted system of proper motions. In the latitude of the Yukaya station a sudden change of 0".10 occurred in 1918-1920; it was of a non-polar nature, since there were no analogous variations in the latitudes of Carloforte and Midzusava. It is concluded that variations of mean latitudes must be taken into account when calculating instantaneous pole coordinates. There are 15 references.

Kh. I. Potter

Translator's note: This is the full translation of the original Russian abstract.

Card 2/2

OBREZKOVA, Y. I., Cond Phys-Math Sci (diss) -- "Changes in the mean latitude of Midzusava, Karloforte, and Yukay from 1900 to 1934". Leningrad, 1960. 18 pp (Acad Sci USSR, Main Astron Observatory), 200 copies (KL, No 12, 1960, 124)

COBRZKIVO, 401

PHASE I BOOK EXPLOITATION

EC7/5742

Akademiya nauk SSSR. Vozbuzhdeniye i peremesheniye shirot i dvizheniya polusov zemli; sbornik statey (Preliminary Data of Latitude Variations and Migrations of the Earth's Poles; Collected Articles. No. 1) Moscow, Izd-vo AN SSSR, 1960. 97 p. Errata slip inserted. 1,000 copies printed.

PURPOSE: This collection of articles is intended for astronomers, geophysicists, and other scientists concerned with the problem of latitude variations and the migration of the Earth's poles.

COVERAGE: Part I of the collection contains preliminary results of latitude observations from 1957.5 through 1959.0 made at IGY stations in the USSR network, including new stations in Siberia. Part II consists of articles describing new instruments, observational programs and methods, and procedures of processing the latitude observational data. With the larger number of stations and the use of new instruments it is anticipated that the final results will provide a more comprehensive study of anomalies and instrumental

CAS I/5

Preliminary Data of Latitude Variations (Cont.)

SSR/5742

errors in latitude observations than has been possible previously. No particularities are mentioned. English abstracts and references follow each article.

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I. Zhuravskaya, S. V., L. D. Kostina, and N. E. Andreyenko. Latitude variations at the Main Astronomical Observatory of the Academy of Sciences USSR (Freyberg-Kondrat'yev Zenith-Telescope)

7

Yevstaf'yenko, Ye. I., I. P. Ogorodnik, and O. V. Chupranova. Observations of Talcott Pairs at the Poltava Gravitational Observatory of the Ukrainian Academy of Sciences (Zeiss Zenith-Telescope)

9

Pogor, N. A. Observations of Bright Zenith Stars at the Poltava Gravitational Observatory of the Ukrainian Academy of Sciences (Zeiss Zenith-Telescope)

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Latitude Data of Latitude Variations (Cont.)

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Card 3/5

OBREZKOVA, YE. I.

NAME I DASH

SCN/5721

Vsesoyuznaya astronomicheskaya observatoriya.

Trudy 14-y Astronomicheskoy Konferentsii, Kiyev, 27-30 maya 1958 g.  
(Transactions of the 14th Astronomical Conference of the USSR, held in Kiyev  
27-30 May 1958) Moscow, Izd-vo AN SSSR, 1960. 140 p. Errata slip inserted.  
1000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Glavnaya astronomicheskaya observatoriya  
(Pulkovo).

Resp. Ed.: M. S. Zverev, Corresponding Member, Academy of Sciences USSR; Ed. of  
Publishing House: N. K. Zaytsev; Tech. Ed.: R. A. Zharayeva.

PURPOSE: The book is intended for astronomers and astrophysicists, particularly  
those interested in astronomical observation.

COVERAGE: This publication presents the Transactions of the 14th Astronomical  
Conference of the USSR, held in Kiyev, 27-30 May 1958. It includes 27 reports  
and 55 scientific papers presented at the plenary meeting of the Conference.

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Transactions of the 14th Astronomical (Cont.)

SOV/5721

and at the special sectional meetings. An appendix contains the resolutions adopted by the Conference, the composition of the committees, the agenda, and the list of participants at the Conference. A brief summary in English is given at the end of each article. References follow individual articles. The Presidium of the Astronomical Committee (Chairman M. S. Zverev), which supervised the preparation of this publication, expresses thanks to the members of the secretariat: V. M. Vasil'yev, I. G. Kol'chinskii, A. B. Onegina, and Kh. I. Potter.

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INFORMATION ON ASTRONOMICAL WORK PRESENTED BY VARIOUS INSTITUTIONS

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Card 10/26

OBREZKOVA, Ye.I.

Variation in the latitude of Poltava according to  
observations with the Bamberg zenith telescope from  
July 1949 to June 1961. Geofiz. i astron. no.8:40-42  
'65. (MIRA 19:1)

1. Poltavskaya gravimetricheskaya observatoriya Instituta  
geofiziki AN UkrSSR.

OBREZUMOV, Pavel Aleksandrovich; YAKUSHENKOV, A.A., redaktor; SOKOLOVA, Ye.I.,  
redaktor izdatel'stva; TIKHONOVA, Ye.A., tekhnicheskij redaktor

[Manual on electric and radio navigation apparatus for ships]  
pravochnik po sudovym elektroradionavigatsionnym ustroistvam.  
Moskva, Izd-vo "Morskoi transport," 1956. 137 p. (MLRA 10:3)  
(Navigation)

107-57-2-30/56

A.  
AUTHOR: Obrezumov, P., senior engineer, Administration of Communication and  
Electro-Radio Navigation

TITLE: Radio Communication in Marine Fleet (Radiosvyaz' na morskem flote)

PERIODICAL: Radio, 1957, Nr 2, p 26 (USSR)

ABSTRACT: A short article presents general information about radio use in the Soviet marine fleet. In 1950, when the ship "Sovetskaya Gavan'" (the Soviet Port) caught fire, rescue operations were directed over a distance of 4,000 km via the stations of the Soviet sea radio service. The sea radio service includes: (1) standby service that insures watching call frequencies of shore and ship stations; (2) radio communication service that insures the operation of the shore and ship stations; (3) radio information service that insures conveying various information to aid ships during complicated meteorological and navigational conditions (weather forecasts, storm warnings, etc.). Sea radio communication can be subdivided into several classes: the roadstead ship-to-ship and ship-to-shore communication in small and large coastal navigation as well as in foreign navigation; the intrabasin communication between the lines and ports within one sea basin and also with the Ministry of Sea Fleet;

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107-57-2-30/56

Radio Communication in Marine Fleet

the communication between the line and ports of different sea basins. Fields of application of voice and CW radio communication are indicated for various types of ships and navigation. Every shore or ship station has a call sign with the first letter U; the shore stations have 3 letters and the ship stations have 4 letters in the call sign. The Q-code is used for the international marine radio service, the Z-code is used for main-line high-speed communications. SOS signals use the 500-meter band and also 4, 6, 8, 12, 16, and 22 mc. All shore and ship radio stations make 2- to 3-minute interruptions every hour to watch on the call and SOS frequencies. The ship transmitter capacity varies between 100 to 250w; emergency transmitters have a capacity of 60w.

AVAILABLE: Library of Congress

Card 2/2

OBRMZUMOV, P. A.

Sixth International Congress on Transportation. Mor.flot 19  
no.3:44 Mr '59. (MIRA 12:4)

1. Starshiy inzhener Upravleniya svyazi i elektroradionavigatsii,  
predstavitel' Ministerstva morskogo flota na VI Mezhdunarodnom  
kongresse sredstv soobshcheniya v Genuye, Italiya.  
(Genoa--Transportation--Congresses)

QERHEL, Frantisek; ZDENOVEC, Vladimir, inz.; SLADECEK, Miroslav

Technical development of general repair and maintenance. Poz  
stavby II no.7:363-369 '63.

1. Fasadostav Praha.

Obrhel, J.

Paleobotanical and stratigraphic notes on the upper gray complex and the Cretaceous southwest of Slany. p. 276. (vestnik, Praha. Vol 31, no. 6, 1956)

SO: Monthly List of East European Accession (E.AL) LC, Vol. 6, no. 7, July 1957. Uncl.



OBRHEL, J.

"Some remarks on the Carboniferous of the Kladno Basin."

p. 342 (Casopis Pro Mineralogii A Geologu, Vol. 2, no. 3, 1957, Czechoslovakia)

Monthly Index of East European Accessions (EEAI) LC. Vol. 7. No. 2,  
February 1958

OSRHEL, J.

The gray upper strata and the Kounov beds west of Kralupy and Vitavov and northwest of Koz-  
nicov. (To be contd.)

p. 270 (Vestník) Vol 52, no. 4, 1957. Praha, Czechoslovakia.

OC: Monthly Index of East European Accessions (MIEA) OC, Vol. 7, no. 1, Jan 1957.

OBRHEL, J.

"The gray upper strata and the kounov beds west of Kralupy and Vitavou and northeast of Revnicev. (To be cond.)

p. 322 (Central Geologic Institute, Czechoslovak Academy of Sciences) Vol. 32, no. 5, 1957

SO: Monthly Index of East European Accession (EEAI) LC, Vol. no. 5, May 1958

OBRHEL, J.

"The Malesice layers in the Kladno-Rakovnik basin."

p. 68 (Central Geologic Institute, Czechoslovak Academy of Sciences) Vol. 33, no. 1, 1958

SO: Monthly Index of East European Accessions (EEAI) LC, Vol. 7, no. 5, May 1958

OBRHEL, J.

"Occurrence of the species Prototaxites Dawson and Pachytheca Hooker (Algae)  
in the Central Bohemian Silurian. In German."

VESTNIK, ustredni ustav geologicky, Prague, Czechoslovakia, Vol. 33, No. 4, 1958.

Monthly List of East European Accessions (EEAI), LC, Vol. 8, No. 8, August 1959.  
Uncl.

OBRHEL, J.

An outline of a detailed stratigraphic classification of the upper gray strata complex in the Kladno-Rakovnik Basin. p. 370

Prague. Ustreeni ustav geoloticky. VESTNIK. Praha, Czechoslovakia, Vol. 33, no. 5, 1958

Monthly List of East European Accessions ( EEAI), LC, Vol. 8, no. 11, Nov. 1959  
Uncl.

OSKAR OPLEVANSKA

OBRTEL, J.

Natural Sciences Faculty of Charles University (Přirodo-  
vědecká fakulta Karlovy universit.), Prague

Prague, Vestník ústředního ústavu geologického, 1951, 1952,  
pp 405-407

"An Alga from the Srbsko Seas of the Central Bohemia.  
Devonian."

GBRHEL, Jiri

"Principles of paleontology." Reviewed by Jiri Gbrhel. Cas  
min geol 9 no. 1:98 '64.

"Paleobotany" by F.Nemejc. Vol.2. Reviewed by Jiri Gbrhel.  
Ibid.:102



OBRHEL, Jiri

The paleoflora associations in the central Bohemian Upper Carboniferous. *Gas min geol* 9 no.4:473-474 '64.

"Descriptive palaeoclimatology" by A.E.M.Nairn and others. Reviewed by Jiri Obrhel. *Ibid.*:474

"Jurassic and Lower Cretaceous flora of Eurasia and the paleoflora regions of that period" by V.A.Vachrameev [Vakhrameev, V.A.]. Reviewed by Jiri Obrhel. *Ibid.*:477-478

1. Faculty of Natural Sciences of the Charles University, Prague.  
Submitted February 11, 1964.

OBRHEL, Jiri

"Paleobotany." Pt.4. Reviewed by Jiri Obrhel. Vest ust geol  
39 no.2:158. Mr'64.

OBRNE, C. F.

presented to the American Society of Naturalists, 1954.  
Nat. geol. 39: 112-116, 1954.

In: Faculty of Natural Sciences, University of Chicago.

CHRYST, J. W.

Plant of the U.S. Army, Fort Belvoir, St. Louis, Mo.  
14 Nov. 1970. 21 p. 100.

1. Family of the U.S. Army, Fort Belvoir, St. Louis, Mo.

SECRET, 1981

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CZECHOSLOVAKIA

OBRIEL, J.

Natural Sciences Faculty of Charles University (Přirodovědecká  
fakulta Karlovy university), Prague

Prague, Časopis pro mineralogii a geologii, No 4, 1964, p.  
473

"Contribution to the Paleobotanical Assemblages of the Upper  
Carboniferous in Central Bohemia."

MM 1000 10 1A

ORANGL, J.

Natural Science Faculty of Charles University - Prague  
Fakulta Karlovy university, Prague

Prague, Časopis pro mineralogii a geologii, No 1, 1965, p. 81-  
82

"On the Changes in the Development of the Bourne Coal at  
Litenisko-Kukovnice."

3.1540 (1062, 1128, 1168)

87254  
S/033/60/037/006/013/022  
E032/E514

AUTHOR: Obridko, V. N.

TITLE: Excitation of the  $K Ca^+$  Line in the Solar Chromosphere

PERIODICAL: Astronomicheskiy zhurnal, 1960, Vol.37, No.6.  
pp.1028-1031

TEXT: The mechanism of excitation of strong chromospheric lines cannot, according to the present author, be looked upon as finally established. In the papers by Krat (Refs. 1 and 2) and Steshenko and Zmeemanek (Ref.3) it is assumed that the only mechanism responsible for the emission in the chromosphere is pure scattering of photospheric radiation. The observed double-peak profiles of some of the chromospheric lines is explained by assuming that the source functions depend on frequency. According to other workers (Goldberg et al., Ref.4; Thomas, Ref.5; Jeffries, Ref.6), the source function depends on altitude, but as a result of the incoherent nature of the scattering process it does not depend on the frequency. In this case the double-peak form of the profiles is explained by variation in the excitation with altitude and is, therefore, very dependent on the assumed model.

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E032/E514

# Excitation of the K Ca<sup>+</sup> Line in the Solar Chromosphere

The present author discusses the excitation of the K Ca II line in the chromosphere assuming steady state conditions for the level 4<sup>2</sup>P<sub>3/2</sub>. It is assumed that transitions from the second level to upper levels and transitions from upper levels to the second level and also forced transitions can be neglected. Moreover, Mustel' (Refs. 7 and 8) has shown that the number of recombinations to the second level can be neglected in comparison with the number of excitations by impact. Under steady state conditions it is then found that

$$\frac{n_2}{n_1} = \frac{g_2}{g_1} W_{r21} e^{-E_{12}/kT} + \frac{n_e}{A_{21}} \int_{\nu_2}^{\infty} q_{12}(\nu) F(\nu) \nu d\nu \quad (1)$$

In this expression the first term on the righthand side describes the excitation of the upper layers of the photosphere which is represented by a Planck function with a temperature of 4500°C,  $r_{21}$  is the residual intensity of the Fraunhofer line (as in Ref. 9; Krat and Sobolev) and the second term describes excitation by

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S/O33/60/O37/006/O13/O22

E032/E514

# Excitation of the K Ca<sup>+</sup> Line in the Solar Chromosphere

electron impact. The dependence of the cross-section for excitation by electron impact on the velocity of the electrons for the K-line is taken from Jeffries' paper (Ref.10). For  $W = 1/2$  the first term on the righthand side of Eq.(1) is equal to  $1.54 \times 10^{-5}$ , while the value for  $W = 1$  is  $3.08 \times 10^{-5}$ . Table 1, which is computed for  $W = 1/2$  is based on Eq.(1).

Table 1

values of  
Величина  $\frac{n_2}{n_1} \cdot 10^3$

$T_e$	$n_e$				$T_e$	$n_e$			
	$10^9$	$10^{10}$	$10^{11}$	$5 \cdot 10^{11}$		$10^9$	$10^{10}$	$10^{11}$	$5 \cdot 10^{11}$
$0.6 \cdot 10^4$	1.54	1.56	1.69	2.29	$1.5 \cdot 10^4$	1.57	1.83	4.44	16.0
$0.8 \cdot 10^4$	1.54	1.58	1.98	3.74	$2.0 \cdot 10^4$	1.57	1.88	4.94	18.5
$1.0 \cdot 10^4$	1.55	1.63	2.41	5.89	$1.0 \cdot 10^5$	1.67	2.80	14.1	64.5

It follows from this table that for  $n_2 \gg 10^{11}$  the electron impact

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E032/E514

Excitation of the K Ca<sup>+</sup> Line in the Solar Chromosphere

mechanism begins to play an appreciable role. Thus, the neglect of excitation by electron impact, at least in the lower layers of the chromosphere will lead to important errors. From the calculated populations of the 4<sup>2</sup>P<sub>3/2</sub> and 4<sup>2</sup>S levels, the present author computed the theoretical profile of the K-line. This was done for the Athay-Menzel two-component model (Refs. 11 and 12) and the Shklovskiy model (Ref.13). Both these models are based on observations of the hydrogen and helium radiations (the second model includes the radio observations also). Assuming that the cold and hot components in these models are completely mixed, and using the appropriate data for these models, it is possible to compute n<sub>2</sub>/n<sub>1</sub> as a function of altitude, and this is given in Table 2. The intensity at a point on the profile corresponding to a wavelength λ at a distance Δλ from the centre of the line is given by

$$I_{\lambda}(h) = \int_0^{\tau_{\lambda}(h)} \frac{j_{\lambda}}{\kappa_{\lambda}} e^{-\xi} d\xi \quad (2)$$

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E032/E514

Excitation of the K Ca<sup>+</sup> Line in the Solar Chromosphere  
where the source function is given by

$$\frac{j_{\lambda}}{\kappa_{\lambda}} = \frac{N_k}{N_i} \frac{g_i}{g_k} \frac{2hc^2}{\lambda^5} \quad (3)$$

Thus, knowing the variation of  $n_2/n_1$  with altitude it is possible to determine from this formula the variation of the source function with altitude. Table 2 gives the values of  $(n_2/n_1)10^5$  for the above two models. It is clear from this table that the Athay-Menzel model cannot explain the observed profiles of the K-line, since it leads to single-peak profiles. Fig.2 shows profiles calculated for the Shklovskiy model (Ref.13) using Eq.(2) for  $W = 1/2$  (curve 1) and  $W = 1$  (curve 2) for an altitude of 840 km. The points shown in this figure refer to observed profiles of the K-line, obtained at the tower solar telescope of the Krymskaya astrofizicheskaya observatoriya AN SSSR (Crimean Astrophysical Observatory of the AS USSR) (dispersion 0.19Å/mm).

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87254

S/033/60/037/006/013/022  
EO32/E514

# Excitation of the $K Ca^+$ Line in the Solar Chromosphere

The above method can in principle be used to explain profiles in the excited parts of the chromosphere. In fact if it is assumed that the excited region is a region of increased temperature but has the same electron concentration, then the maxima will rise very rapidly, while the central intensity will remain roughly the same. Fig.2 shows a theoretical profile calculated for a temperature of  $10000^{\circ}C$  in the excited region (curve 3). The general conclusion is that the Shklovskiy model (Ref.13) can in principle explain the formation of double-peak profiles, while the Athay-Menzel model (Ref.11) cannot do so. Acknowledgments are expressed to E. V. Kononovich who directed this work and to S. V. Pikel'ner for valuable suggestions. There are 2 figures, 2 tables and 16 references: 9 Soviet, 7 non-Soviet.

ASSOCIATION: Gos. astronomicheskiy in-t imeni P. K. Shternberga  
(State Astronomical Institute imeni P.K. Shternberg)

SUBMITTED: May 20, 1960  
Card 6/8

43165

S/203/62/002/003/017/021  
I023/I250

AUTHOR: Ioshpa, B.A. and Obridko, V.N.

TITLE: The measurement of the total magnetic field vector on the Sun by a photoelectric magnetograph

PERIODICAL: Geomagnetizm i Aeronomiya, v.2, no.3, 1962, 541-544

TEXT: The method is based on solution of the equations of radiation transfer in a magnetic field in the presence of true absorption only for Stokes' parameters. The radiation is incident on a crystal optical modulator and then analyzed by a polaroid the axis of which forms an angle of  $45^\circ$  with the axes of the crystal. The intensity of radiation is then

$$J_{\chi_p} = \frac{1}{2} (I - Q \sin 2\varphi \cos \delta + V \sin \delta) \quad (1)$$

where  $I, Q, V$  - Stokes' parameters,  $\varphi$  - angle between the direction of the magnetic field and the axis of the crystal,  $\delta$  - phase difference introduced by the crystal. It is shown how to calculate the Stokes parameters from the experimental data. There are 2 tables,

Card 1/2

S/203/62/002/003/017/021  
I023/I250

The measurement of the total...

2 references. Most important reference: W. Unno. Publ. Astron. Soc.  
Japan, 1956, 8, 108.

ASSOCIATION: Institut zemnogo magnetizma, ionosfery i rasprostra-  
neniya radiovoln Akademii nauk SSSR (Institute for  
Terrestrial Magnetism, Ionosphere and Radiowave  
Propagation, Academy of Sciences USSR)

SUBMITTED: January 30, 1962

Card 2/2

2  
OBRIDKO, V. N.

IOSHPA, B.A., MOOILEVSKIY, E. I., OBRIDKO, V.N.

Observations of the free of force magnetic field on the Sun and the  
questions of generation of corpuscular geoeffective streams. (USSR)

Report submitted for the 4th International Space Symposium (COSPAR)  
Warsaw, 2-12 June 63



L 13106-63

EWT(1)/EDS AFFTC/ASD/SSD

ACCESSION NR: AP3003420

S/0051/63/015/001/0119/0112

AUTHOR: Ioshpa, B.A.; Gpridko, V.N.TITLE: Photoelectric analysis of polarized light 21

SOURCE: Optika i spektroskopiya, v.15, no.1, 1963, 119-122

TOPIC TAGS: polarized light, Stokes parameter

ABSTRACT: A method for accurate and simultaneous measurement of the four Stokes parameters, I, V, Q and  $\theta$ , of arbitrarily polarized radiation is proposed. The procedure is based on allowing the radiation to fall on an optical plate, preferably a quarter or half wavelength plate, giving rise to a phase difference ( $\pi/2$  for a  $\lambda/4$  plate) between the ordinary and extraordinary rays; then the light goes through a polaroid positioned at  $45^\circ$  to the axes of the plate. By way of the plate one can use a plate cut from an ammonium phosphate or similar electro-optical crystal with a voltage applied along the z axis to make the crystal biaxial. The ac voltage is selected to make the phase difference between the two rays vary from  $-\pi/2$  to  $+\pi/2$ . The first harmonic is taken off the crystal and this gives one set of equations; the crystal is then rotated  $45^\circ$  to obtain another set of equations. As a result there are obtained six equations, only four of which are need-

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ACCESSION NR: AP3003420

ed to find the Stokes parameters I, V, Q and U. The requisite equations are derived. The proposed photoelectric method is superior to that proposed by W. Buade (Appl. Optics, 1, 201, 1962), for it allows of determining all four Stokes parameters instead of only three. An instrument based on the described principle has been constructed and is being used to measure the spatial orientation and magnitude of the magnetic vector on the Sun by determining the Stokes parameters of the elliptically polarized radiation in solar absorption lines. The accuracy may attain 1 part in  $10^5$  or  $10^6$  depending on the sensitivity of the photomultiplier. Orig. art. has: 32 formulas and 2 figures.

ASSOCIATION: none

SUBMITTED: 9Nov62

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AUTHOR: Obridko, V. N.TITLE: Profile of the K-sub-232 line and the structure of the solar chromosphereSOURCE: Astronomicheskiy zhurnal, v. 40, no. 3, 1963, 446-454

TOPIC TAGS: solar chromosphere, solar atmosphere, solar chromosphere temperature, solar chromosphere electron density, solar chromosphere hydrogen

ABSTRACT: The theory of the source function developed by R. N. Thomas and J. T. Jeffries (*Astrophys. J.*, v. 125, 1957, 260; v. 127, 1958, 667; v. 129, 1959, 401) was employed in the calculation of the K-sub-232 line of Ca II. A comparison of these theoretical values with observational data indicates that K-sub-2 originates in a quasi-isothermal region, whereas K-sub-3 originates in a region with a sharp temperature increase. The distribution of the temperature, electron density  $n_{\text{sub-e}}$ , and density of neutral hydrogen with height in the chromosphere is determined for active and unperturbed regions of the solar chromosphere. Despite the admitted crudeness of the present analysis, due primarily to the assumed constancy of  $n_{\text{sub-e}}$ , the following conclusions appear justified: (1) The Thomas-Jeffries theory describes the profile of the K-sub-232 line quite satisfactorily; (2) the

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central portion of the K line is formed in a region with an exceedingly steep temperature increase; (3) at equal elevations, the temperature is somewhat lower in an active region than in an unperturbed region; (4) an analysis of eclipse observations shows that a steep increase in temperature in an unperturbed region begins at an elevation of appx. 4,000 km, which coincides with that obtained from the author's K-line-profile analysis. Further refinements require consideration of the variations of the electron density and of  $\Delta\lambda_{\text{sub-d}}$  with elevation. The introduction of a changing electron density should alter the model obtained here at elevations from 3,000 km on upward. The obtainment of a dependable profile in active and unperturbed regions is also desirable. "I regard it to be my duty to express my gratitude to G. M. Nikol'skiy for useful discussion." There are 10 figures.

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